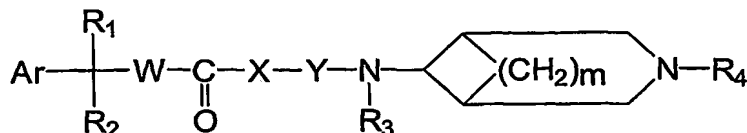


WE CLAIM:

1. A compound having the structure of Formula I :



Formula I

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, or metabolites, wherein

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from straight or branched lower alkyl (C₁-C₄), trifluoromethyl, methylenedioxy, cyano, hydroxy, halogen (e.g. F, Cl, Br, I), nitro, lower alkoxy (C₁-C₄), aryloxy, amino or lower alkylamino;

R₁ represents C₃-C₉ cycloalkyl ring, a C₃-C₉ cycloalkenyl ring, an aryl or a heteroaryl ring having 1 to 2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or a heteroaryl ring may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), trifluoromethyl, cyano, hydroxy, nitro, lower alkoxy, carbonyl, halogen, lower alkoxy (C₁-C₄), unsubstituted amino or lower alkyl (C₁-C₄) amino;

R₂ represents a hydrogen, hydroxy, amino, alkoxy, alkenyloxy, alkynyloxy, carbamoyl or halogen (e.g. F, Cl, Br, I);

W represents (CH₂)_p, where p represents 0 to 1;

X represents an oxygen, sulphur, NR, or no atom, where R is H or lower alkyl (C₁-C₄);

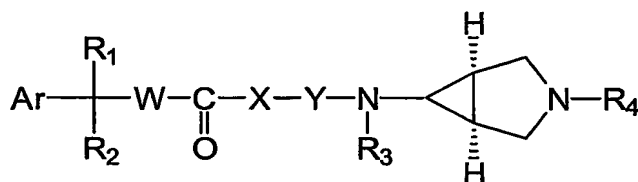
Y represents $(\text{CHR}_5)_q \text{CO}$ wherein R_5 represents hydrogen or methyl; or
y represents $(\text{CH}_2)_q$ wherein q represents 0 to 4;

m represents 0 to 2;

R_3 represents hydrogen, lower alkyl or $\text{CO}_2\text{C}(\text{CH}_3)_3$;

5 R_4 represents hydrogen, $\text{C}_1\text{-C}_{15}$ saturated or unsaturated aliphatic hydrocarbon groups in which any 1 to 6 hydrogen atoms may be substituted with the group independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3
10 hydrogen atoms on an aryl or heteroaryl ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl, trifluoromethyl, cyano, hydroxyl, carboxylic acid, nitro, lower alkoxy, amino, lower alkylamino, loweralkyl carbonyl amino, loweralkyl thiocarbonyl amino or loweralkyl carbonyl amino sulphonyl and
15 pharmaceutically acceptable salts thereof.

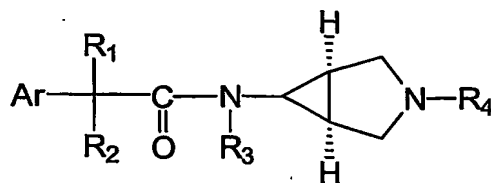
2. The compound according to claim 1 having the structure of Formula II



Formula II

25 and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein Ar, R_1 , R_2 , R_3 , R_4 , W, X and Y are as defined for Formula I.

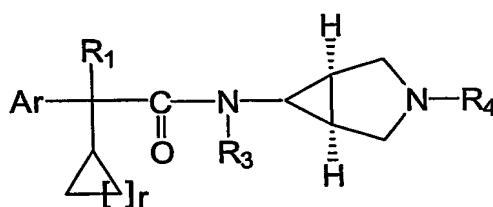
3. The compound according to claim 1 having the structure of Formula III



Formula III

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, or metabolites, wherein Ar, R₁, R₂, R₃, and R₄ are as defined for Formula I.

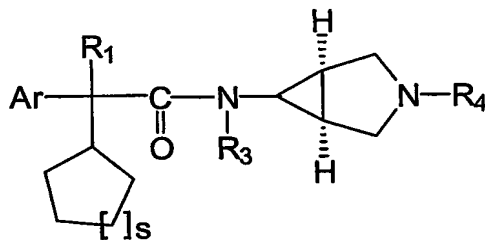
4. The compound according to claim 1 having the structure of Formula IV



Formula IV

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein Ar, R₁, R₃, and R₄, are as defined for Formula I and r is 1 to 4.

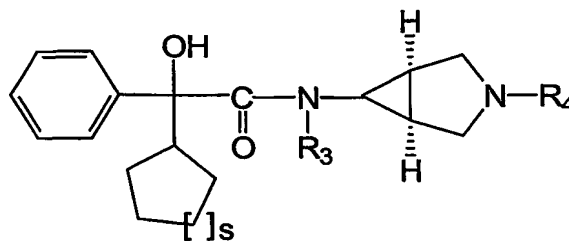
5. A Compound according to claim 1 having the structure of Formula V



Formula V

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein Ar, R₁, R₃ and R₄ are as defined for Formula I and s is 1 to 3.

6. The compound according to claim 5 having the structure of Formula VI



Formula VI

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites wherein R_3 , R_4 and s are as defined for Formula V.

7. A compound selected from the group consisting of :

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-hydroxy-2,2-diphenyl acetamide (Compound No.1),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-hydroxy-2,2-di (4-fluoro phenyl) acetamide (Compound No.2),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-(2-propenyloxy)-2,2-diphenyl acetamide (Compound No.3),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-(2-propenyloxy)-2,2-di(4-fluorophenyl) acetamide (Compound No.4),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-propyloxy-2,2-diphenyl acetamide (Compound No.5),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-propyloxy-2,2-di(4-fluoro phenyl) acetamide(Compound No.6),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-(2-propynyloxy)-2,2-diphenyl acetamide(Compound No.7),

- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-hydroxy-2,2-di(2-furyl) acetamide (Compound No.8),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-hydroxy-2,2-di(2-thienyl) acetamide (Compound No.9),
- 5 (1 α ,5 α ,6 α)-4-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-tert-butyloxy arbonyl)butyl-1-(2-hydroxy-2,2-diphenyl)acetate (Compound No.10),
- (1 α ,5 α ,6 α)-3-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-tert-butyloxy carbonyl)propyl-1-(2-hydroxy-2,2-diphenyl)acetate (Compound No.11),
- 10 (1 α ,5 α ,6 α)-3-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-tert-butyloxy carbonyl) propyl-1-(2-propyloxy-2,2-diphenyl) acetate (Compound No.12),
- (1 α ,5 α ,6 α)-4-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-tert-butyloxy carbonyl)butyl-1-(2-propyloxy-2,2-diphenyl)acetate(Compound No.13),
- 15 (1 α ,5 α ,6 α)-4-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-tert-butyloxy carbonyl) butyl-1-(2-(2-propenyloxy)-2,2-diphenyl) acetate (Compound No.14),
- (1 α ,5 α ,6 α)-4-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-tert-butyloxy carbonyl)butyl-1-(2-hydroxy-2,2-di(4-fluorophenyl))acetate (Compound No.15),
- 20 (1 α ,5 α ,6 α)-4-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-tert-butyloxy carbonyl) butyl-1-(2-propyloxy-2,2-di(4-fluorophenyl)) acetate(Compound No.16),
- (1 α ,5 α ,6 α)-1-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-acetamido-2- (2-propyloxy)-2,2-diphenyl acetate (Compound No.17),
- 25 (1 α ,5 α ,6 α)-1-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-acetamido- 2- (2-propenyloxy)-2,2-diphenyl acetate(Compound No.18),

(1 α ,5 α ,6 α)-1-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-propionamido- 2- (2-propenyloxy)-2,2-diphenyl acetate (Compound No.19),

(1 α ,5 α ,6 α)-1-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-propionamido- 2- 2-propyloxy)-2,2-diphenyl acetate (Compound No.20),

5 (1 α ,5 α ,6 α)-1-(6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl))-N-acetamido -2-hydroxy-2,2-di(4-fluorophenyl) acetate(Compound No.21),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-cyclohexyl-2-hydroxy- 2-phenyl acetamide (Compound No.22),

10 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(3,5-difluorobenzyl))- 2- cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.23),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-bromobenzyl))-2-cyclo hexyl-2-hydroxy-2-phenyl acetamide (Compound No.24),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2,6-difluorobenzyl)) -2- cyclohexyl- 2-hydroxy-2-phenyl acetamide (Compound No.25),

15 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-phenylbenzyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.26),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-phenylethyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.27),

20 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-(2,3-dihydrobenzofuran-5-yl)ethyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.28),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-(3,4-methylenedioxyphenyl)ethyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.29),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(1-(2,3-dihydrobenzofuran-5-yl)acetyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.30),

25 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-(benzofuran-5-yl)ethyl))-2-cyclo hexyl-2-hydroxy-2-phenyl acetamide (Compound No.31),

- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-methyl)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.32),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-ethyl)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.33),
- 5 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(1-propyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.34),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-propargyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.35),
- 10 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-propenyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.36),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-propyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.37),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-cyclopropyl)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.38),
- 15 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(1-butyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.39),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(3-methyl-2-butenyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.40),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-methyl-3-pentenyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.41),
- 20 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(3,4-methylenedioxybenzyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.42),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(6,6-dimethyl-2,4-heptadiynyl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.43),
- 25 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzoyl)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.44),

- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-formyl-fur-5-yl))-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.45),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(aniline)thiourea)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.46),
- 5 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(methyl, 4-amino-1- phenyl acetate)urea)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.47),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-amino-1-phenyl acetic acid) urea)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.48),
- 10 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-methylphenyl-1-sulphonamide) urea)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.49),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-cyclohexyl-2-hydroxy-2-(4-methylphenyl) acetamide (Compound No.50),
- 15 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-cyclohexyl-2-hydroxy-2-(4-methoxyphenyl) acetamide (Compound No.51),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-cyclohexyl-2-hydroxy-2-(4-phenoxyphenyl) acetamide (Compound No.52),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-cyclohexyl-2-hydroxy-2-(4-fluorophenyl) acetamide (Compound No.53).
- 20 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-cyclohexyl-2-hydroxy-2-(3,4-methylenedioxyphenyl) acetamide(Compound No.54),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-cyclohexyl-2-hydroxy-2-(4-tertbutylphenyl) acetamide (Compound No.55).
- 25 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-methyl-3-pentenyl))-2-cyclohexyl-2-hydroxy-2-(4-methylphenyl) acetamide (Compound No.56),

- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-methyl-3-pentenyl)) -2-cyclohexyl-2-hydroxy-2-(4-methoxyphenyl) acetamide (Compound No.57),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-methyl-3-pentenyl))-2-cyclohexyl-2-hydroxy-2-(4-fluorophenyl) acetamide (Compound No.58),
- 5 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-cyclohexyl-2-methoxy-2-phenyl acetamide (Compound No.59),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-ethyl)-2-cyclohexyl-2-methoxy-2-phenyl acetamide (Compound No.60),
- 10 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-cyclohexyl-2-(2-propenyloxy)-2-phenyl acetamide (Compound No.61),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-methyl-3-pentenyl))-2-cyclohexyl-2-methoxy-2-phenyl acetamide (Compound No.62),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2,4-difluorobenzyl))-2-cyclohexyl-2-methoxy-2-phenyl acetamide (Compound No.63),
- 15 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-cyclopentyl-2-hydroxy-2-phenyl acetamide (Compound No.64),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-methyl-3-pentenyl))-2-cyclopentyl-2-hydroxy-2-phenyl acetamide (Compound No.65),
- 20 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-(3,4-methylenedioxyphenyl)ethyl)-2-cyclopentyl-2-hydroxy-2-phenyl acetamide (Compound No.66),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-phenylethyl))-2-cyclopentyl-2-hydroxy-2-phenyl acetamide (Compound No.67),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-(2,3-dihydrobenzofuran-5-yl)ethyl))-2-cyclopentyl-2-hydroxy-2-phenyl acetamide (Compound No.68),
- 25 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-methyl-pyrid-6-yl))-2-cyclopentyl-2-hydroxy-2-phenyl acetamide (Compound No.69),

- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(1-(2,3-dihydrobenzofuran-5-yl)acetyl))-2-cyclopentyl-2-hydroxy-2-phenyl acetamide (Compound No.70),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(2-(benzofuran-5-yl)ethyl))-2-cyclopentyl-2-hydroxy-2-phenyl acetamide (Compound No.71),
- 5 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-2-cycloheptyl-2-hydroxy-2-phenyl acetamide (Compound No.72),
- (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-methyl-3-pentenyl))-2-cycloheptyl-2-hydroxy-2-phenyl acetamide (Compound No.73),
- 10 2-Amino-((1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl) propionamido)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.74),
- 2-Amino-((1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl) acetamido)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide. (Compound No.75),
- 3-Amino-((1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl) propionamido)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.76),
- 15 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl)-3-cyclohexyl-3-hydroxy-3-phenyl propionamide (Compound No.77),
- 2-Amino-((1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl) acetamido)-3-cyclohexyl-3-hydroxy-3-phenyl propionamide (Compound No.78),
- 20 2-Amino-((1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-benzyl) propionamido)-2-cyclohexyl-3-hydroxy-3-phenyl propionamide (Compound No.79),
- (1 α ,5 α ,6 α)-2-[6-N-(3-benzyl-3-azabicyclo[3.1.0]hexyl)-N-propionamido]-2-cyclohexyl-2-hydroxy-2-phenyl acetate (Compound No.80),
- (2R)(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-methyl-3-pentenyl))-2-cyclopentyl-2-hydroxy-2-phenyl acetamide (Compound No.81),

(2R)-(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(3,4-methylenedioxy phenyl)ethyl)-2-cyclopentyl-2-hydroxy-2-phenyl acetamide
(Compound No.82),

5 (2R)-(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-methyl-3-pentenyl))-2-cyclopentyl-2-hydroxy-2-phenyl acetamide succinate salt. (Compound No.83),

(2R)-(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl-3-(4-methyl-3-pentenyl))-2-cyclopentyl-2-hydroxy-2-phenyl acetamide L-(+)-tartrate salt.
(Compound No.84),

10 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl)-2-cyclohexyl-2-hydroxy-2-phenyl acetamide (Compound No.85),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl)-2-cyclohexyl-2-hydroxy-2-(4-fluorophenyl) acetamide (Compound No.86),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl)-2-cyclohexyl-2-hydroxy-2-(4-methoxyphenyl)acetamide (Compound No.87),

15 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl)-2-cyclohexyl-2-hydroxy-2-(4-methylphenyl)acetamide (Compound No.88),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl)-2-cyclopentyl-2-hydroxy-2-phenyl acetamide (Compound No.89),

20 (1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl)-2-cycloheptyl-2-hydroxy-2-phenyl acetamide (Compound No.90),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl)-2-cyclobutyl-2-hydroxy-2-phenyl acetamide (Compound No.91),

(1 α ,5 α ,6 α)-6-N-(3-azabicyclo[3.1.0]hexyl)-2-cyclopropyl-2-hydroxy-2-phenyl acetamide (Compound No.92),

(1 α ,5 α ,6 α)-1-[6N-(3-azabicyclo[3.1.0]hexyl)]-N-acetamido-2-hydroxy-2-cyclohexyl-2-phenylacetate (Compound No.93),

(1 α ,5 α ,6 α)-1-[6N-(3-azabicyclo[3.1.0]hexyl)]-N-propionamido-2-hydroxy-2-cyclohexyl-2-phenylacetate (Compound No.94),

5 (1 α ,5 α ,6 α)-4-[6N-(3-azabicyclo[3.1.0]hexyl)]-N-(tert-butyloxy carbonyl)butyl-1-[2-hydroxy-2,2-bis(4-fluorophenyl)]acetate (Compound No.95),

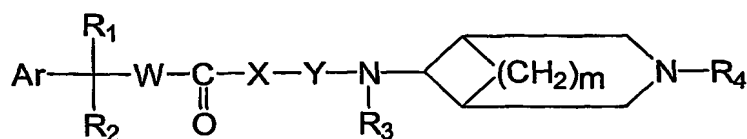
(1 α ,5 α ,6 α)-4-[6N-(3-azabicyclo[3.1.0]hexyl)]-N-(tert-butyloxy carbonyl)butyl-1-[2-propyloxy-2,2-bis(4-fluorophenyl)]acetate (Compound No.96),

10 (1 α ,5 α ,6 α)-6N-(3-azabicyclo[3.1.0]hexyl)-2,2-diphenyl acetamide (Compound No.97),

(1 α ,5 α ,6 α)-6N-(3-azabicyclo[3.1.0]hexyl)-2-cyclohexyl-2-methoxy-2-phenylacetamide (Compound No.98).

8. A pharmaceutical composition comprising a therapeutically effective amount of a compound as defined in any of claims 1-7 together with pharmaceutically acceptable carriers, excipients or diluents.

9. A method for treatment or prophylaxis of an animal or a human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems wherein the disease or disorder is mediated through muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of a compound having the structure of Formula I



Formula I

30 and its pharmaceutically acceptable salts, pharmaceutically acceptable

solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, or metabolites, wherein

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from straight or branched lower alkyl (C₁-C₄), trifluoromethyl, methylenedioxy, cyano, hydroxy, halogen (e.g. F, Cl, Br, I), nitro, lower alkoxy (C₁-C₄), aryloxy, amino or lower alkylamino;

R₁ represents C₃-C₉ cycloalkyl ring, a C₃-C₉ cyclo alkenyl ring, an aryl or a heteroaryl ring having 1 to 2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms; the aryl or a heteroaryl ring may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), trifluoromethyl, cyano, hydroxy, nitro, lower alkoxy, carbonyl, halogen, lower alkoxy (C₁-C₄), unsubstituted amino or lower alkyl (C₁-C₄) amino;

R₂ represents a hydrogen, hydroxy, amino, alkoxy, alkenyloxy, alkynyloxy, carbonyl or halogen (e.g. F, Cl, Br, I);

W represents (CH₂)_p, where p represents 0 to 1;

X represents an oxygen, sulphur, NR, or no atom, where R is H or lower alkyl (C₁-C₄);

Y represents (CHR₅)_q CO wherein R₅ represents hydrogen or methyl; or Y represents (CH₂)_q wherein q represents 0 to 4;

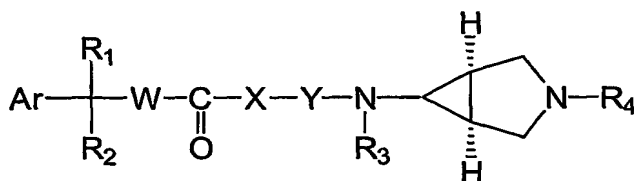
m represents 0 to 2;

R₃ represents hydrogen, lower alkyl or CO₂C (CH₃)₃;

R₄ represents hydrogen, C₁-C₁₅ saturated or unsaturated aliphatic hydrocarbon groups in which any 1 to 6 hydrogen atoms may be substituted with the group independently selected from halogen, alkyl, alkenyl, heteroalkyl or heteroalkenyl having 1 to 2 hetero atoms selected from

the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on an aryl or heteroaryl ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl, trifluoromethyl, cyano, hydroxyl, carboxylic acid, nitro, lower alkoxy, carbonyl, amino, lower alkoxy, amino, lower alkylamino, loweralkyl carbonyl amino, loweralkyl thiocarbonyl amino or loweralkyl carbonyl amino sulphonyl.

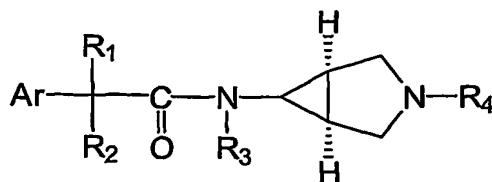
10. The method according to claim 9 for treatment or prophylaxis of an animal or a human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems, where the disease or disorder is mediated through muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of a compound having the structure of Formula II



Formula II

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein Ar, R₁, R₂, R₃, R₄, W, X and Y are as defined for Formula I.

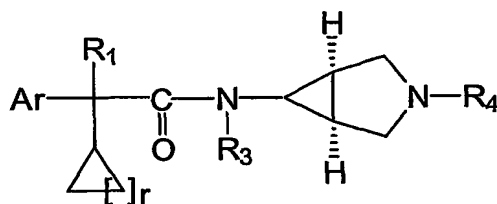
11. The method according to claim 9 for treatment or prophylaxis of an animal or a human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems, wherein the disease or disorder is mediated through muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of a compound having the structure of Formula III



Formula III

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein Ar, R₁, R₂, R₃, and R₄ are as defined for Formula I.

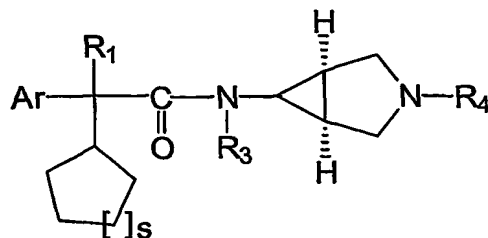
12. The method according to claim 9 for treatment or prophylaxis of an animal or a human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems wherein the disease or disorder is mediated through muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of a compound having the structure of Formula IV



Formula IV

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein Ar, R₁, R₃, and R₄, are as defined for Formula I and r is 1 to 4.

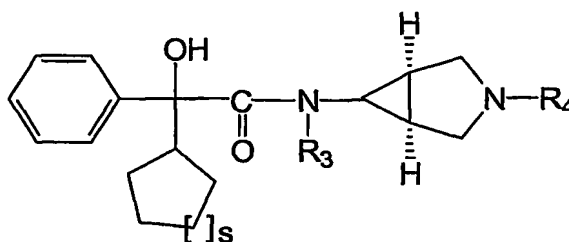
13. The method according to claim 9 for treatment or prophylaxis of an animal or a human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems, wherein the disease or disorder is mediated through muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of a compound having the structure of Formula V



Formula V

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs, metabolites, wherein Ar, R₁, R₃ and R₄ are the same as defined for Formula I and s is 1 to 3.

14. The method according to claim 9 for treatment or prophylaxis of an animal or a human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems wherein the disease or disorder is mediated through muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of compound having the structure of Formula VI



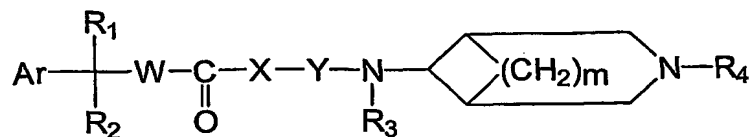
Formula VI

and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxide, polymorphs, prodrugs, metabolites wherein R₃, R₄ and s are the same as defined for Formula V..

15. The method according to claim 9 wherein the disease or disorder is urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesis.
16. The method according to claim 10 wherein the disease or disorders is urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesis.

17. The method according to claim 11 wherein the disease or disorder is urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesis.
- 5 18. The method according to claim 12 wherein the disease or disorder is urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesis.
- 10 19. The method according to claim 13 wherein the disease or disorder is urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesis.
- 15 20. The method according to claim 14 wherein the disease or disorder is urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesis.
- 20 21. The method for treatment or prophylaxis of an animal or a human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems, wherein the disease or disorder is mediated through muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of the pharmaceutical composition according to claim 8.
- 25 22. The method according to claim 21 wherein the disease or disorder is urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesis.

23. A process of preparing a compound of Formula I,



Formula I

and its pharmaceutical acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs or metabolites wherein

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from straight or branched lower alkyl (C₁-C₄), trifluoromethyl, methylenedioxy, cyano, hydroxy, halogen (e.g. F, Cl, Br, I), nitro, lower alkoxy (C₁-C₄), aryloxy, amino or lower alkylamino;

R₁ represents C₃-C₉ cycloalkyl ring, a C₃-C₉ cyclo alkenyl ring, an aryl or a heteroaryl ring having 1 to 2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms; the aryl or a heteroaryl ring may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), trifluoromethyl, cyano, hydroxy, nitro, lower alkoxy, carbonyl, halogen, lower alkoxy (C₁-C₄), unsubstituted amino or lower alkyl (C₁-C₄) amino;

R₂ represents a hydrogen, hydroxy, amino, alkoxy, alkenyloxy, alkynyloxy, carbamoyl or halogen (e.g. F, Cl, Br, I);

W represents (CH₂)_p, where p represents 0 to 1;

X represents an oxygen, sulphur, NR, or no atom, where R is H or lower alkyl (C₁-C₄);

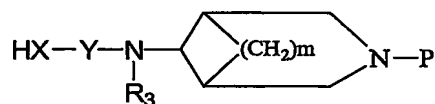
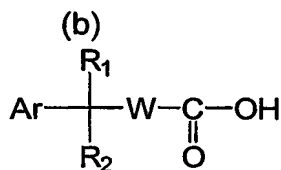
Y represents (CHR₅)_q CO wherein R₅ represents hydrogen or methyl; or Y represents (CH₂)_q wherein q represents 0 to 4;

m represents 0 to 2;

R₃ represents hydrogen, lower alkyl or CO₂C (CH₃)₃;

R₄ represents hydrogen.

- 5 (a) condensing a compound of Formula VII with a compound of Formula VIII



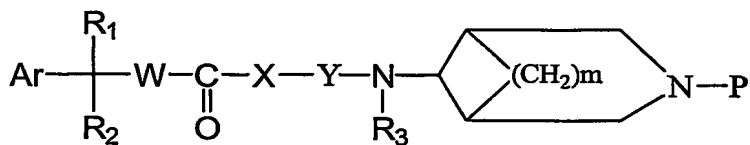
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Formula VII

Formula VIII

wherein Ar, R₁, R₂, R₃, W, X, Y and m have the same meanings as defined earlier, P is any group which can be used to protect an amino group, in the presence of a condensing agent to give a protected compound of Formula IX, and

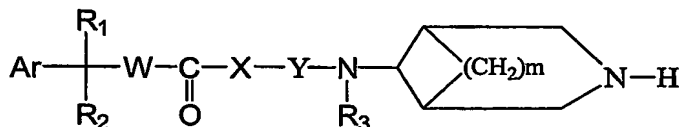
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Formula IX

- (b) deprotecting the compound of Formula IX in the presence of a deprotecting agent to give a compound of Formula X,

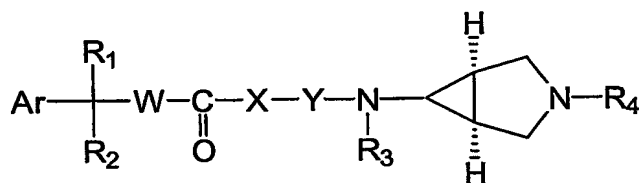
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Formula X

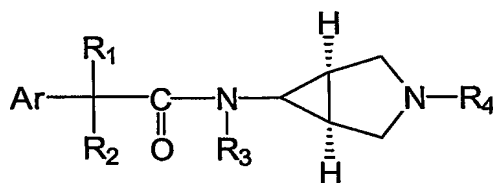
wherein Ar, R₁, R₂, R₃, W, X, Y, m and P are the same as defined earlier.

24. The process according claim 23 wherein the group P is selected from the group consisting of benzyl and tert-butyloxycarbonyl.
25. The process according to claim 23 wherein the condensing agent is selected from the group consisting of 1-(3-dimethylamino propyl)-3-ethyl carbodiimide hydrochloride (EDC) and 1,8-diazabicyclo [5.4.0] undec-7-ene (DBU).
26. The process according to claim 23 for preparing a compound of Formula II wherein R₄ is hydrogen.



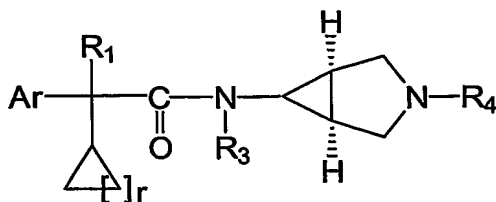
Formula II

27. The process according to claim 23 wherein the compound of Formula III is prepared wherein R₄ is hydrogen.



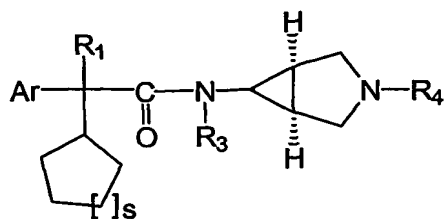
Formula III

28. The process according to Claim 23 wherein the compound of Formula IV is prepared wherein R₄ is hydrogen.



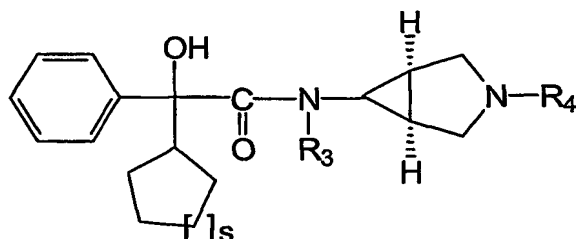
Formula IV

29. The process according to Claim 28 wherein the compound of Formula V is prepared wherein R_4 is hydrogen.



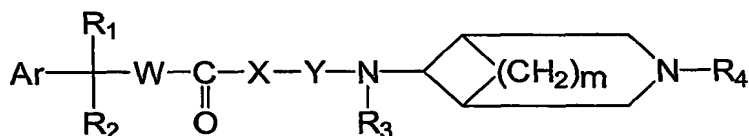
Formula V

30. The process according to Claim 29 wherein the compound of Formula VI is prepared wherein R_4 is hydrogen.



Formula VI

31. A process of preparing a compound of Formula I,



Formula I

and its pharmaceutical acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs or metabolites wherein

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from straight or branched lower alkyl (C_1 -

C₄), trifluoromethyl, methylenedioxy, cyano, hydroxy, halogen (e.g. F, Cl, Br, I), nitro, lower alkoxy (C₁-C₄), aryloxy, amino or lower alkylamino;

5 R₁ represents C₃-C₉ cycloalkyl ring, a C₃-C₉ cyclo alkenyl ring, an aryl or a heteroaryl ring having 1 to 2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms; the aryl or a heteroaryl ring may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), trifluoromethyl, cyano, hydroxy, nitro, lower alkoxy, carbonyl, halogen, lower alkoxy (C₁-C₄), unsubstituted amino or lower alkyl (C₁-C₄) amino;

10 R₂ represents a hydrogen, hydroxy, amino, alkoxy, alkenyloxy, alkynyloxy, carbamoyl or halogen (e.g. F, Cl, Br, I);

W represents (CH₂)_p, where p represents 0 to 1;

X represents an oxygen, sulphur, NR, or no atom, where R is H or lower alkyl (C₁-C₄);

15 Y represents (CHR₅)_q CO wherein R₅ represents hydrogen, or methyl; or Y represents (CH₂)_q wherein q represents 0 to 4;

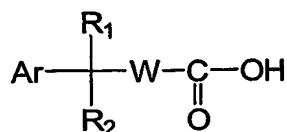
m represents 0 to 2;

R₃ represents hydrogen, lower alkyl or CO₂C (CH₃)₃;

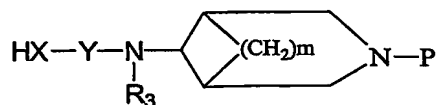
20 R₄ represents C₁-C₁₅ saturated or unsaturated aliphatic hydrocarbon groups in which any 1 to 6 hydrogen atoms may be substituted with the group independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on an aryl or heteroaryl ring in said arylalkyl, arylalkenyl, hetero arylalkenyl group may be substituted with lower alkyl, trifluoromethyl, cyano, hydroxyl, carboxylic acid, nitro, lower alkoxy, carbonyl, halogen, lower alkoxy, amino, lower alkylamino, loweralkyl carbonyl amino, loweralkyl thiocarbonyl amino or loweralkyl carbonyl amino sulphonyl, comprising

25

(a) condensing a compound of Formula VII with a compound of Formula VIII

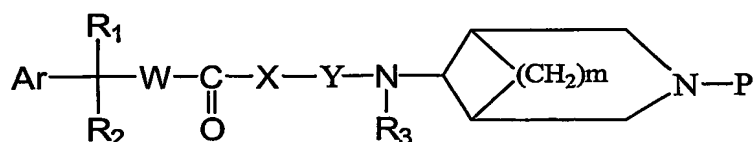


Formula VII



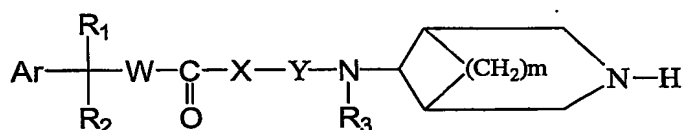
Formula VIII

5 wherein Ar, R₁, R₂, R₃, W, X, Y and m have the same meanings as defined earlier, P is any group which can be used to protect an amino group, in the presence of a condensing agent to give a protected compound of Formula IX,



Formula IX

(b) deprotecting the compound of Formula IX in the presence of a deprotecting agent to give a compound of Formula X,

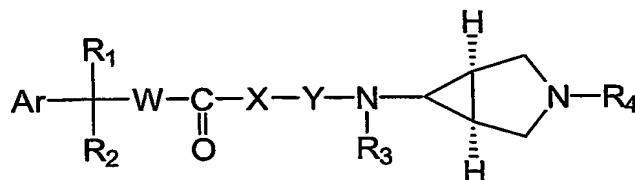


Formula X

wherein Ar, R₁, R₂, R₃, W, X, Y, m and P are the same as defined earlier, and

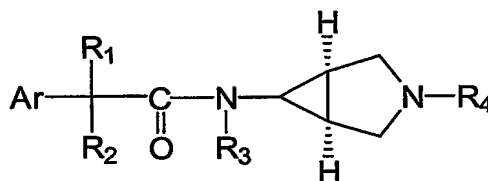
- (c) N-alkylating or benzylating the compound of Formula X with a suitable alkylating or benzylating agent L-R₄ wherein L is a leaving group and R₄ is as defined earlier, to give a compound of Formula I.
32. The process according claim 31 wherein the group P is selected from the group consisting of benzyl and tert-butyloxycarbonyl.

33. The process according to claim 31 wherein the condensing agent is selected from the group consisting of 1-(3-dimethylamino propyl)-3-ethyl carbodiimide hydrochloride (EDC) and 1,8-diazabicyclo [5.4.0] undec-7-ene (DBU).
34. The process according to claim 31 for preparing a compound of Formula II.



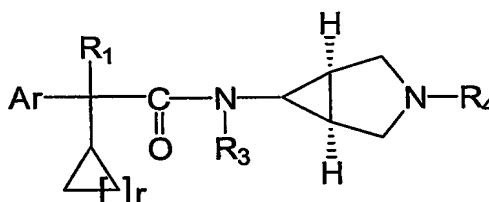
Formula II

35. The process according to claim 31 wherein the compound of Formula III is prepared.



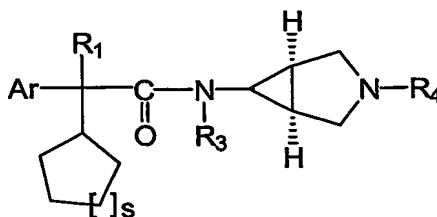
Formula III

36. The process according to Claim 31 wherein the compound of Formula IV is prepared.



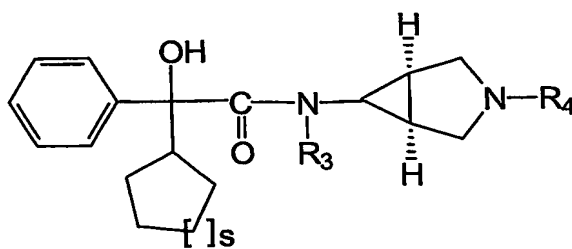
Formula IV

- 25
37. The process according to Claim 36 wherein the compound of Formula V is prepared.



Formula V

38. The process according to Claim 37 wherein the compound of Formula VI is prepared.



Formula VI